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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/805,529 | 03/13/2001 | Akira Shiokawa | NAK1-BO21 | 2114 |

7590 05/22/2003

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| EXAMINER | |
|---|---|
| ANYASO, UCHENDU O | |
| ART UNIT | PAPER NUMBER |
| 2675 | 5 |

DATE MAILED: 05/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/805,529 | SHIOKAWA ET AL. | |
| | Examiner | Art Unit | |
| | Uchendu O Anyaso | 2675 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *13 March 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

## DETAILED ACTION

1. **Claims 1-34** are pending in this action.

### *Claim Rejections - 35 USC ' 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. **Claims 1-34** are rejected under 35 U.S.C. 102(e) as being anticipated by ~~Suzuki~~ Miyazaki' *et al* (U.S. Patent ~~6,262,699~~ 5,909,199).

Regarding **independent claim 1**, Miyazaki teaches an invention that relates to a circuit for driving a plasma cell used in a display device or the like, and more particularly to a plasma driving circuit for sequentially discharging and driving a plurality of plasma channels provided in a plasma cell such that a technique of suppressing a rush current (surge) derived from an internal capacity of a plasma driving circuit is employed (column 1, lines 5-13).

Furthermore, Miyazaki teaches a gas discharge panel in which a plurality of discharge cells are arranged in the form of a matrix between the pair of substrates (*see* figure 8, column 6, lines 34-63).

Also, Miyazaki teaches that there is provided a plasma driving circuit which fundamentally comprises a plurality of complementary switches, a constant current source and a scanner so as to sequentially discharge and drive a plurality of plasma channels wherein the plurality of complementary switches are provided correspondingly to individual plasma

channels wherein the constant current source is connected in common to each of the complementary switches and supplies a constant discharge current thereto (column 1, lines 53-61). The scanner sequentially turns on and off the complementary switches under control to thereby distribute the discharge current sequentially to the corresponding plasma channels (column 1, lines 62-65).

Furthermore, Miyazaki teaches pulse waveforms that show that the current waveform is formed when the sustain pulse is applied wherein the current waveform is a waveform in which a time from when a peak is reached to when a fall is completed is no more than triple a time from when a rise is started to when the peak is reached (*see* figures 3A, 3B, 4A, 4B, 5A-5D).

Regarding **independent claims 2, 7, 15, 19, 23** and **25,** and for **claims 3, 6, 8, 11, 16, 20, 18** and **22,** Miyazaki teaches an invention that relates to a circuit for driving a plasma cell used in a display device or the like, and more particularly to a plasma driving circuit for sequentially discharging and driving a plurality of plasma channels provided in a plasma cell such that a technique of suppressing a rush current (surge) derived from an internal capacity of a plasma driving circuit is employed (column 1, lines 5-13).

Furthermore, Miyazaki teaches a gas discharge panel in which a plurality of discharge cells are arranged in the form of a matrix between the pair of substrates (*see* figure 8, column 6, lines 34-63).

Also, Miyazaki teaches that there is provided a plasma driving circuit which fundamentally comprises a plurality of complementary switches, a constant current source and a scanner so as to sequentially discharge and drive a plurality of plasma channels wherein the

plurality of complementary switches are provided correspondingly to individual plasma channels wherein the constant current source is connected in common to each of the complementary switches and supplies a constant discharge current thereto (column 1, lines 53-61). The scanner sequentially turns on and off the complementary switches under control to thereby distribute the discharge current sequentially to the corresponding plasma channels (column 1, lines 62-65).

Furthermore, Miyazaki teaches pulse waveforms that show that immediately before a leading edge of each sustain pulse is applied to the discharge cell, the driving circuit applied a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined period (*see* figures 10A, 10B).

Regarding **claims 4, 5, 9, 10, 17, 21, 24** and **26,** in further discussion of claim 3, 8, 16, 20, 23 and 25, Miyazaki teaches a voltage-current waveform obtained when the internal capacity is 1nF, and 10nF wherein when the internal capacity is 1 nF, the constant current response is as fast as 1 microsecond or so, and in a case where the internal capacity is 10 nF, the constant current response is rendered so slow as 10 microseconds, whereby the waveform is not kept at a fixed level during the discharge period (column 8, lines 13-21, figure 10A, 10B).

Furthermore, Miyazaki teaches that under the fixed conditions relative to the discharge voltage and the limit current, the rush current is increased correspondingly to the larger amount of the internal capacity of the plasma driving circuit, so that the time of occurrence of the picture distortion caused by the undesirable discharge is expedited to a considerably great extent showing why it is important that the internal capacity of the plasma driving circuit be

diminished in order to suppress any undesirable discharge (column 8, lines 21-29, figure 10A, 10B).

Regarding **independent claims 12, 27** and **29,** and for **claims 13, 28** and **30,** Miyazaki teaches an invention that relates to a circuit for driving a plasma cell used in a display device or the like, and more particularly to a plasma driving circuit for sequentially discharging and driving a plurality of plasma channels provided in a plasma cell such that a technique of suppressing a rush current (surge) derived from an internal capacity of a plasma driving circuit is employed (column 1, lines 5-13).

Furthermore, Miyazaki teaches a gas discharge panel in which a plurality of discharge cells are arranged in the form of a matrix between the pair of substrates (*see* figure 8, column 6, lines 34-63).

Also, Miyazaki teaches that there is provided a plasma driving circuit which fundamentally comprises a plurality of complementary switches, a constant current source and a scanner so as to sequentially discharge and drive a plurality of plasma channels wherein the plurality of complementary switches are provided correspondingly to individual plasma channels wherein the constant current source is connected in common to each of the complementary switches and supplies a constant discharge current thereto (column 1, lines 53-61). The scanner sequentially turns on and off the complementary switches under control to thereby distribute the discharge current sequentially to the corresponding plasma channels (column 1, lines 62-65).

Furthermore, Miyazaki teaches how FIG. 9 typically shows an actual structure of the plasma addressed liquid crystal display device in FIG. 8 wherein this device has a laminated flat panel structure where a liquid crystal cell 21 and a plasma cell 22 are superposed integrally via a microsheet glass 23 as a dielectric sheet (column 6, lines 64 through column 7, line 1, figure 8, 9 at 21, 22). The liquid crystal cell 21 is composed by the use of an upper glass substrate 24 and is stuck to the microsheet glass 23 with a predetermined gap kept therebetween (column 7, lines 1-7, figure 9 at 24, 26).

Furthermore, Miyazaki teaches pulse waveforms that show that immediately before a leading edge of each sustain pulse is applied to the discharge cell, the driving circuit applied a pulse that is opposite in polarity to the sustain pulse, to the discharge cell for a predetermined period (*see* figures 10A, 10B).

Regarding **independent claims 14** and **31-34,** Miyazaki teaches an invention that relates to a circuit for driving a plasma cell used in a display device or the like, and more particularly to a plasma driving circuit for sequentially discharging and driving a plurality of plasma channels provided in a plasma cell such that a technique of suppressing a rush current (surge) derived from an internal capacity of a plasma driving circuit is employed (column 1, lines 5-13).

Furthermore, Miyazaki teaches a gas discharge panel in which a plurality of discharge cells are arranged in the form of a matrix between the pair of substrates (*see* figure 8, column 6, lines 34-63).

Also, Miyazaki teaches that there is provided a plasma driving circuit which fundamentally comprises a plurality of complementary switches, a constant current source and a

scanner so as to sequentially discharge and drive a plurality of plasma channels wherein the plurality of complementary switches are provided correspondingly to individual plasma channels wherein the constant current source is connected in common to each of the complementary switches and supplies a constant discharge current thereto (column 1, lines 53-61). The scanner sequentially turns on and off the complementary switches under control to thereby distribute the discharge current sequentially to the corresponding plasma channels (column 1, lines 62-65).

Furthermore, Miyazaki teaches how FIG. 9 typically shows an actual structure of the plasma addressed liquid crystal display device in FIG. 8 wherein this device has a laminated flat panel structure where a liquid crystal cell 21 and a plasma cell 22 are superposed integrally via a microsheet glass 23 as a dielectric sheet (column 6, lines 64 through column 7, line 1, figure 8, 9 at 21, 22). The liquid crystal cell 21 is composed by the use of an upper glass substrate 24 and is stuck to the microsheet glass 23 with a predetermined gap kept therebetween (column 7, lines 1-7, figure 9 at 24, 26).

Furthermore, Miyazaki teaches pulse waveforms that show that the current waveform is formed when the sustain pulse is applied wherein the current waveform is a waveform in which a time from when a peak is reached to when a fall is completed is no more than triple a time from when a rise is started to when the peak is reached (*see* figures 3A, 3B, 4A, 4B, 5A-5D).

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 6,376,995 to *Kato et al* for a plasma display panel, display apparatus using the same and driving method thereof.

U.S. Patent 6,262,699 to Suzuki et al for a method of driving plasma display panel.

U.S. Patent 6,466,186 to Shimizu et al for a method and apparatus for driving plasma display panel unaffected by the display load amount.

***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

05/18/2003

STEVEN SARAS
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